CLAIMS

1. An image coding apparatus for coding image data corresponding to a target image to be coded, on the basis of image data corresponding to a predictive image similar to the target image, said apparatus comprising:

predictive image generation means for generating image data corresponding to partial predictive images which are similar to plural partial images constituting the target image, on the basis of image feature data indicating features of the plural partial images;

image composition means for compositing the plural partial predictive images on the basis of the image data of the plural partial predictive images and auxiliary data indicating the positions and sizes of the respective partial images in the target image, thereby generating image data of the predictive image; and

entropy coding means for subjecting the image data of the target image to entropy coding utilizing the correlation in pixel values between the target image and the predictive image, and outputting entropy codes as coded image data of the target image; and

said image coding apparatus outputting the image feature data and the auxiliary data as well as the entropy codes.

2. An image coding apparatus as defined in Claim 1 further comprising:

image feature extraction means for generating the image feature data indicating the features of the respective partial images constituting the target image, and the auxiliary data indicating the positions and sizes of the respective partial images in the target image, on the basis of the image data of the target image.

3. An image coding apparatus as defined in Claim 2 wherein:

said entropy coding means comprises:

first image blocking means for dividing the image data of the predictive image into image data corresponding to plural predictive blocks constituting the predictive image and each having a predetermined size, and outputting the image data of each predictive block;

second image blocking means for dividing the image data of the target image into image data corresponding to plural target blocks constituting the target image and each having a predetermined size, and outputting the image data of each target block; and

block predictive coding means for subjecting the image data of each target block to entropy coding on the basis of the correlation in pixel values between each predictive block and each target block; and

said block predictive coding means performs entropy coding on the image data of the target block and outputs the corresponding coded image data and a coding flag when the difference between the target block and the predictive block is equal to or larger than a predetermined reference value; on the other hand, the block predictive coding means does not perform entropy coding on the target block and outputs a non-coding flag when the difference between the target block and the predictive block is smaller than the reference value.

4. An image coding apparatus as defined in Claim 2 further comprising:

image filtering means for subjecting the image data of the predictive image to filtering so that minute portions of the predictive image are omitted, and outputting the filtered data of the predictive image; and

said entropy coding means subjecting the image data of the target image to entropy coding on the basis of the filtered data.

5. An image decoding apparatus for decoding coded image data obtained by subjecting image data corresponding to a target image to be coded to entropy coding utilizing the correlation in pixel values between the target image and a predictive image similar to the target image, said apparatus comprising:

predictive image generation means for generating image data

corresponding to partial predictive images similar to plural partial images constituting the target image, on the basis of image feature data indicating features of the plural partial images;

image composition means for compositing the plural partial predictive images on the basis of the image data of the plural partial predictive images and auxiliary data indicating the positions and sizes of the partial images in the target image, thereby generating image data of the predictive image; and

entropy decoding means for subjecting the coded image data of the target image to entropy decoding utilizing the correlation in pixel values between the target image and the predictive image, on the basis of the image data of the predictive image, thereby generating image data of the target image.

6. An image decoding apparatus for receiving the coded image data, the coding flag or non-coding flag, the image feature data, and the auxiliary data which are output from the image coding apparatus defined in Claim 3, and generating decoded image data of the target image, said apparatus comprising:

predictive image generation means for generating image data corresponding to partial predictive images similar to plural partial images constituting the target image, on the basis of image feature data indicating the features of the plural partial images;

image composition means for compositing the plural partial predictive images on the basis of the image data of the plural partial predictive images and auxiliary data indicating the positions and sizes of the partial images in the target image, thereby generating image data of the predictive image;

image blocking means for dividing the image data of the predictive image into image data corresponding to plural predictive blocks constituting the predictive image and each having a predetermined size, and outputting the image data of each predictive block;

block predictive decoding means for subjecting the coded image data of the target block to entropy decoding utilizing the correlation in pixel values between the target block and the predictive block, on the basis of the image data of the respective predictive blocks, thereby generating image data of the target block; and

block assembly means for receiving the image data of the predictive blocks and the image data of the target blocks, and assembling the target image using the target blocks and the predictive blocks, on the basis of the coding flag and the non-coding flag, thereby restoring the image data of the target image.

7. (Amended) An image decoding apparatus as defined in Claim 5 further comprising:

an image filtering means for subjecting the image data of the

predictive image to filtering such that minute portions of the predictive image are omitted, and outputting the filtered data of the predictive image; and

said entropy decoding means subjecting the coded image data of the target image to entropy decoding on the basis of the filtered data.

8. An image coding apparatus for coding image data of a target image to be coded, on the basis of image data of a predictive image similar to the target image, said apparatus comprising:

predictive image generation means for generating image data of the predictive image similar to the target image, on the basis of image feature data indicating the feature of the target image; and

entropy coding means for subjecting the image data of the target image to entropy coding utilizing the correlation in pixel values between the target image and the predictive image, and outputting entropy codes as coded image data of the target image; and

said image coding apparatus outputting the entropy codes and the image feature data corresponding to the target image.

9. An image coding apparatus as defined in Claim 8 further comprising image feature extraction means for extracting the image feature from the target image on the basis of the image

data of the target image, and outputting the image feature data to the predictive image generation means.

10. An image coding apparatus as defined in Claim 9 wherein:

said image feature extraction means comprises:

blocking means for dividing the image data of the target image into plural blocks constituting the target image and each having a predetermined size, thereby generating image data corresponding to the respective blocks; and

block smoothing means for replacing the image data of each block with a pixel value of the highest occurrence frequency among the pixel values of pixels in the block, and outputting, as image feature data of the target image, image data of a reduced image comprising the highest-frequency pixel values of the respective blocks; and

said predictive image generation means generates image data of a predictive image in which all of the pixels constituting each block have the highest-frequency pixel values corresponding to the target block, which is obtained by enlarging the respective pixels of the reduced image to the blocks of the predetermined size.

11. An image coding apparatus as defined in Claim 9 wherein:

said image feature extraction means comprises:

feature vector extraction means for outputting a

feature vector indicating the feature of an image similar to the target image; and

vector quantization means for subjecting the feature vector to quantization, thereby outputting, as image feature data of the target image, an identifier which is set on a region including the feature vector among plural regions partitioning a vector space in which plural learning vectors are defined; and

said predictive image generation means generates image data of a predictive image corresponding to the target image, on the basis of a learning vector which is closest to a representative feature vector included in the region of the vector space where the identifier is set.

12. An image decoding apparatus for decoding coded image data which is obtained by subjecting image data of a target image to be coded to entropy coding utilizing the correlation in pixel values between the target image and a predictive image similar to the target image, said apparatus comprising:

predictive image generation means for generating image data of a predictive image corresponding to the target image, on the basis of image feature data indicating the image feature of the target image; and

entropy decoding means for subjecting the coded image data of the target image to entropy decoding, utilizing the correlation in pixel values between the target image and the

predictive image, on the basis of the image data of the predictive image, thereby generating image data of the target image.

13. An image coding apparatus as defined in any of Claims 1, 2, 8, and 9 wherein:

the image feature data is image data corresponding to a reduced image, which is obtained by dividing the image data of the target image into image data corresponding to plural blocks constituting the target image and each having a predetermined size, and replacing the image data corresponding to each block with a pixel value of the highest occurrence frequency among the pixel values of pixels in the block; and

the predictive image generation means generates image data of a predictive image in which all of the pixels constituting each block have the highest-frequency pixel value of the target block, which is obtained by enlarging the respective pixels of the reduced image to the blocks of the predetermined size.

14. An image decoding apparatus as defined in Claim 5 or 12 wherein:

the image feature data is image data corresponding to a reduced image which is obtained by dividing the image data of the target image into image data corresponding to plural blocks constituting the target image and each having a predetermined

size, and replacing the image data corresponding to each block with a pixel value of the highest occurrence frequency among the pixel values of pixels in the block; and

the predictive image generation means generates image data of a predictive image in which all of the pixels constituting each block have the highest-frequency pixel value of the target block, which is obtained by enlarging the respective pixels of the reduced image to the blocks of the predetermined size.

15. An image coding apparatus as defined in any of Claims 1, 2, 8 and 9 wherein:

the image feature data is an identifier associated with a vector which is selected from plural already-existing vectors predefined in a vector space, by using a feature vector indicating the feature of an image similar to the target image; and

the predictive image generation means outputs, as image data of a predictive image for the target image, image data specified by the selected vector corresponding to the identifier.

16. An image decoding apparatus as defined in Claim 5 or 12 wherein:

the image feature data is an identifier associated with a vector which is selected from plural already-existing vectors predefined in a vector space by using a feature vector indicating

the feature of an image similar to the target image; and

the predictive image generation means outputs, as image data of a predictive image for the target image, image data specified by the selected vector corresponding to the identifier.

17. An image coding apparatus for coding image data of a target image to be coded, on the basis of image data of a predictive image similar to the target image, said apparatus comprising:

entropy coding means for receiving the image data of the predictive image supplied from the outside, subjecting the image data of the target image to entropy coding, utilizing the correlation in pixel values between the target image and the predictive image, on the basis of the image data of the predictive image, and outputting entropy codes as coded image data of the target image; and

said image coding apparatus outputting the image data of the predictive image as well as the entropy codes of the target image.

18. An image coding apparatus as defined in Claim 17 further comprising:

image prediction means for outputting the image data of the predictive image similar to the target image, to the entropy coding means, on the basis of the image data of the target image.

19. An image coding apparatus as defined in Claim 18 wherein

said image predictive means comprises:

feature vector extraction means for outputting a feature vector indicating the image feature of the image similar to the target image, on the basis of the image data of the target image;

vector quantization means for subjecting the feature vector to quantization, thereby outputting, as image feature data of the target image, an identifier which is set on a region including the feature vector among plural regions partitioning a vector space in which plural learning vectors are defined; and

predictive image generation means for generating data of a predictive image for the target image, on the basis of a learning vector which is closest to a representative feature vector included in the region of the vector space where the identifier is set.

20. An image decoding apparatus for decoding coded image data which is obtained by subjecting image data of a target image to be coded to entropy coding utilizing the correlation in pixel values between the target image and a predictive image similar to the target image, said apparatus comprising:

entropy decoding means for subjecting the coded image data of the target image to entropy decoding, utilizing the correlation in pixel values between the target image and the predictive image, on the basis of image data of the predictive image which is input separately from the coded image data of the target image, thereby

generating image data of the target image.

21. An image coding apparatus for coding image data of a target image to be coded, on the basis of image data of a predictive image for the target image, said apparatus comprising:

image feature extraction means for extracting the image feature from the target image on the basis of the image data of the target image, and outputting image feature data of the target image;

predictive image generation means for generating image data of a predictive image similar to the target image, on the basis of the image feature data of the target image;

predictive image storage means for associating image data of a target image which has already been coded, with its image feature data, and storing them as image data and image feature data corresponding to an already-processed image;

predictive image selection means for comparing the image feature data of the target image with the image feature data of the already-processed images which are stored in the predictive image storage means, and selecting, as a predictive image, either the similar image or a predetermined already-processed image;

entropy coding means for subjecting the image data of the target image to entropy coding utilizing the correlation in pixel values between the target image and the predictive image, thereby outputting entropy codes as coded image data of the target image;

and

said predictive image selection means outputting a flag indicating that either the similar image or the predetermined already-processed image is selected as a predictive image, and outputting the image feature data of the target image.

22. An image coding apparatus as defined in Claim 21 wherein:

said image feature extraction means comprises:

feature vector extraction means for generating a first feature vector as image feature data corresponding to the target image, on the basis of the image data of the target image; and

character recognition means for subjecting the target image to character recognition on the basis of the first feature vector to generate a character code corresponding to the target image; and

said predictive image generation means generates, as first predictive image data, image data of the image similar to the target image, on the basis of the character code of the target image;

said predictive image storage means stores the image data of the target image which has already been coded, its character code, and its first feature vector, in association with each other;

said predictive image selection means reads image data and a feature vector associated with a character code which is equal to the character code of the target image, as second predictive

image data and a second feature vector, and outputs one of the first and second predictive image data according to the result of comparison between the first and second feature vectors.

23. An image decoding apparatus for decoding coded image data which is obtained by subjecting image data of a target image to be coded to entropy coding utilizing the correlation in pixel values between the target image and a predictive image similar to the target image, said apparatus comprising:

predictive image generation means for generating image data of an image similar to the target image, on the basis of image feature data indicating the image feature of the target image;

predictive image storage means for associating image data of a target image which has already been decoded with its image feature data, and storing them as image data and image feature data corresponding to an already-processed image;

predictive image selection means for selecting, as a predictive image, either the similar image or a predetermined already-processed image, on the basis of flag information indicating that either a similar image obtained from the image feature of the target image or an already-coded image is used as a predictive image for the target image in the coding process; and

entropy decoding means for subjecting the coded image data of the target image to entropy decoding, on the basis of the

image data of the predictive image, utilizing the correlation in pixel values between the target image and the predictive image, thereby generating image data of the target image.

24. An image decoding apparatus as defined in Claim 23 wherein:

said predictive image generation means generates first predictive image data for the target image on the basis of a character code as image feature data of the target image;

said predictive image storage means associates image data of a target image which has already been decoded, with its character code, and stores them as image data and a character code of an already-processed image; and

said predictive image selection means reads image data associated with a character code which is equal to the character code of the target image, as second predictive image data, from the predictive image storage means, and outputs one of the first and second predictive image data on the basis of the flag information.

25. An image coding apparatus for coding image data of a target image to be coded, on the basis of image data of a predictive image for the target image, said apparatus comprising:

image feature extraction means for extracting the image feature of the target image on the basis of the image data of the target image, and outputting image feature data of the target

image;

predictive image generation means for generating image data of an image similar to the target image, on the basis of the image feature data of the target image;

predictive image storage means for storing image feature data of a target image which has already been coded, as image feature data of an already-processed image;

data output control means for performing either a first data output process or a second data output process according to the result of comparison between the image feature data of the target image and the image feature data of the already-processed image stored in the predictive image storage means, said first data output process outputting the image data of the similar image, the image feature data of the target image, and a coding flag indicating that coding should be performed, and said second data output process outputting the image feature data of the target image and a non-coding flag indicating that coding should not be performed; and

entropy coding means for subjecting the image data of the target image to entropy coding utilizing the correlation in pixel values between the target image and the similar image, thereby outputting entropy codes as coded image data of the target image;

wherein said entropy coding means performs entropy coding when it receives the coding flag, and does not perform entropy coding and outputs no entropy code when it receives the non-

coding flag.

26. An image coding apparatus as defined in Claim 25 wherein:

said image feature extraction means comprises:

feature vector extraction means for generating a first feature vector as image feature data of the target image, on the basis of the image data of the target image; and

character recognition means for subjecting the target image to character recognition on the basis of the first feature vector to generate a character code corresponding to the target image; and

said predictive image generation means generates, as predictive image data, image data of an image similar to the target image, on the basis of the character code of the target image;

said predictive image storage means stores the character code of a target image which has already been coded, in association with its first feature vector;

said data output control means reads, as a second feature vector of the predictive image, a feature vector associated with a character code which is equal to the character code of the target image, and performs either a first data output process of outputting the image data of the similar image, the character code of the target image, and a coding flag indicating that coding is to be performed, or a second data output process of

outputting the character code of the target image and a non-coding flag indicating that coding is not to be performed.

27. An image decoding apparatus for decoding coded image data which is obtained by subjecting image data of a target image to be coded to entropy coding utilizing the correlation in pixel values between the target image and a predictive image similar to the target image, said apparatus comprising:

predictive image generation means for generating first predictive image data for the target image, on the basis of image feature data indicating the image feature of the target image;

predictive image storage means for associating the image data of a target image which has already been decoded, with its image feature data, and storing them as image data and image feature data of an already-processed image;

data output control means for performing, when it receives a coding flag indicating that coding has been performed, a first data output process of outputting the first predictive image data and the coding flag and, on the other hand, performing, when it receives a non-coding flag indicating that coding has not been performed, a second data output process of reading the image data of the already-processed image as second predictive image data from the predictive image storage means, and outputting the second predictive image data and the non-coding flag; and

entropy decoding means for performing, when it receives the

coding flag, entropy decoding on the coded image data of the target image, on the basis of the first predictive image data, utilizing the correlation in pixel values between the target image and the predictive image and, on the other hand, outputting the second predictive image data as decoded data of the target image when it receives the non-coding flag.

28. An image decoding apparatus of Claim 27 wherein:

said predictive image generation means generates first predictive image data for the target image on the basis of the character code as image feature data of the target image;

said predictive image storage means associates the image data of the target image which has already been decoded, with its character code, and stores them as image data and a character code of an already-processed image; and

said data output control means reads, as second predictive image data, image data associated with a character code which is equal to the character code of the target image, and outputs one of the first and second predictive image data on the basis of the flag information.

29. An image coding apparatus as defined in any of Claims 1, 2, 8, 9, 17, 18, 21, and 25 wherein:

the entropy code is an arithmetic code obtained by subjecting the image data of the target image to arithmetic

coding in which the pixel value probability is changed for each of pixels constituting the target image; and

the entropy coding means changes the pixel value probability, pixel by pixel, on the basis of the image data of the predictive image similar to the target image, and the image data of the already-coded part of the target image.

30. An image decoding apparatus as defined in any of Claims 5, 12, 20, 23, and 27 wherein:

the entropy code is an arithmetic code obtained by subjecting the image data of the target image to arithmetic coding in which the pixel value probability is changed for each of pixels constituting the target image; and

the entropy decoding means subjects the arithmetic code of the target image to arithmetic decoding in which the pixel value probability is changed, pixel by pixel, on the basis of the image data of the predictive image similar to the target image, and the image data of the already-decoded part of the target image, thereby reproduces the image data of the target image.

31. An image coding apparatus as defined in any of Claims 1, 2, 8, 9, 17, 18, 21, and 25 wherein:

the entropy code is a Huffman code obtained by subjecting the image data of the target image to a coding process in which a Huffman coding table is changed for each of pixels constituting

the target image; and

the entropy coding means changes the Huffman coding table, pixel by pixel, on the basis of the image data of the predictive image similar to the target image, and the image data of the already-coded part of the target image.

32. An image decoding apparatus as defined in any of Claims 5, 12, 20, 23, and 27 wherein:

the entropy code is a Huffman code obtained by subjecting the image data of the target image to a coding process in which a Huffman coding table is charged for each of pixels constituting the target image; and

the entropy decoding means subjects the coded image data of the target image to a decoding process in which the Huffman coding table is changed pixel by pixel, on the basis of the image data of the predictive image similar to the target image, and the image data corresponding to the already-decoded part of the target image, thereby reproduces the image data of the target image.

33. An image coding apparatus as defined in any of Claims 1, 2, 8, 9, 17, 18, 21, and 25 further comprising:

attribute information addition means for receiving attribute information relating to the target image, and outputting the coded image data of the target image to which the attribute

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information is added.

34. (Amended) An image coding apparatus for coding image data of a target image to be coded, which includes a character image, said apparatus comprising:

character image coding means for receiving the image data of the target image, and coding the image data of the character image included in the target image to output character image codes as a part of coded data of the target image;

character image deletion means for replacing the pixel values of pixels constituting a part of the target image where the character image is placed, with the pixel values of pixels positioned in the vicinity of the character image, thereby generating image data of a non-character image where the character image of the target image is deleted;

non-character image coding means for coding the image data of the non-character image to output non-character image codes as a part of the coded data of the target image; and

said character image coding means comprising:

a predictive image generator for generating image data of a predictive image similar to the character image on the basis of image feature data indicating the feature of the character image; and

an entropy encoder for subjecting the image data of the target image by utilizing the correlation in pixel values

between the character image and the predictive image, and outputting entropy codes as character image codes of the character image.

35. (Amended) An image decoding apparatus for receiving the character image codes and the non-character image codes outputted from the image coding apparatus defined in Claim 34, and reproducing the image data of the target image including the character image, said apparatus comprising:

non-character image decoding means for decoding the non-character image codes to output the image data of the non-character image;

character image decoding means for decoding the character image codes to output the image data of the character image; and

image reconstruction means for compositing the character image and the non-character image on the basis of the image data of the character image and the image data of the non-character image, and outputting the image data of the target image including the character image.

36. A character collation apparatus for collating retrieval data indicating a retrieval condition for retrieving a character image, with character image codes obtained by coding image data of a character image, wherein attribute information relating to a character image corresponding to the character image codes is

added to the character image codes; and

said apparatus being provided with character attribute collation means for collating the retrieval data with the character image codes, according to whether the attribute information added to the character image codes satisfies the

retrieval condition indicated by the retrieval data.

37. A character collation apparatus for collating a character code specifying a character image to be retrieved, with character image codes to which image feature data indicating the image feature of the character image is added, which character image codes are obtained by coding image data of the character image, said apparatus comprising:

image feature extraction means for extracting the image feature of the character image specified by the character code, and outputting it as image feature data; and

collation decision means for collating the image feature data added to the character image codes, with the image feature data obtained from the character code, and deciding whether the character image codes match the character code.

38. A character collation apparatus as defined in Claim 37 wherein:

the image feature data added to the character image codes is a feature vector indicating the image feature of the character image corresponding to the character image codes;

the image feature extraction means comprises:

character image generation means for generating image data of a character image specified by the character code, on the basis of the character code; and

feature vector extraction means for extracting the image feature of the character image on the basis of the image data of the character image, thereby outputting a feature vector indicating the image feature; and

the collation decision means includes distance calculation means for calculating a distance between the feature vector added to the character image codes and the feature vector obtained from the character code, and decides whether the character image codes match the character code or not, according to whether the distance is larger than a predetermined threshold or not.

39. A character collation apparatus for collating a character code specifying a character image to be retrieved, with character image codes to which image data of a predictive character image similar to the character image is added, which character image codes are obtained by coding image data of the character image, said apparatus comprising:

first image feature extraction means for receiving the character image codes, and extracting the image feature from the predictive character image on the basis of the image data of the predictive character image added to the character image codes, thereby outputting first image feature data;

second image feature extraction means for receiving the character code, and extracting the image feature of the character image specified by the character code, thereby outputting second

image feature data; and

collation decision means for collating the first image feature data with the second image feature data, and deciding whether the character image codes match the character code or not.

40. A character collation apparatus as defined in Claim 39 wherein:

said first image feature extraction means outputs a first feature vector as the first image feature data;

said second image feature extraction means comprises:

character image generation means for generating image data of a character image specified by the character code, on the basis of the character code; and

feature vector extraction means for extracting the image feature of the character image on the basis of the image data of the character image, thereby outputting a second feature vector indicating the image feature;

said collation decision means includes distance calculation means for calculating the distance between the first feature vector and the second feature vector, and decides whether the character image codes match the character code or not, according to whether the distance is larger than a predetermined threshold or not.

41. A character collation apparatus for collating a character

code specifying a character image to be retrieved, with character image codes to which an identifier indicating a predictive character image similar to the character image is added, which character image codes are obtained by coding image data of the character image, said apparatus comprising:

table storage unit storing a character-to-character distance table in which the identifier of the predictive character image and the character code are associated with distance information which is calculated using the identifier and the character code as variables;

distance calculation means for receiving the character image codes and the character code, and obtaining distance information having, as variables, the predictive character image identifier added to the character image code, and the character code, with reference to the character-to-character distance table; and

collation decision means for deciding whether the character image codes match the character code or not, on the basis of the distance information.

42. A character collation apparatus for collating a character code specifying a character image to be retrieved, with character image codes to which an identifier indicating a predictive character image similar to the character image is added, which character image codes are obtained by coding image data of the character image, said apparatus comprising:

first image feature extraction means for receiving the character image codes, and extracting the image feature from the predictive character image on the basis of the identifier indicating the predictive character image and added to the character image codes, thereby outputting first image feature data;

a second image feature extraction mans for receiving the character code, and extracting the image feature of a character image specified by the character code to output second image feature data; and

collation decision means for collating the first image feature data with the second image feature data to decide whether the character image code matches the character code or not.

43. A character collation means as defined in Claim 42 wherein:

said first image feature extraction means outputs a first feature vector as the first image feature data;

said second image feature extraction means comprises:

character image generation means for generating image data of a character image specified by the character code, on the basis of the character code; and

feature vector extraction means for extracting the image feature of the character image on the basis of the image data of the character image to output a second feature vector indicating the image feature;

said collation decision means includes distance calculation means for calculating the distance between the first feature vector and the second feature vector, and decides whether the character image codes match the character code or not, according to whether the distance is larger than a predetermined threshold or not.

44. A data storage medium containing an image processing program for making a computer perform image data processing, said image processing program being a program for making a computer perform image processing of an apparatus defined in any of Claims 1 to 43, or a program for implementing, with a computer, the function of at least one means which constitutes an apparatus defined in any of Claims 1 to 43.

45. A facsimile comprising:

a scanner for converting a target image to be transmitted into electronic data, and outputting the target image data;

an image coding unit for coding the target image data to output image feature data indicating the feature of the target image as well as the coded data;

a transmitter-receiver for adding the image feature data of the target image to the coded data of the target image, and transmitting/receiving composite data including the coded data and the image feature data through a communication line;

an image decoding unit for receiving the coded data and the image feature data included in the composite data received by the transmitter-receiver, and decoding the coded data on the basis of the image feature data to output target image data; and

an image output unit for displaying or printing out the target image on the basis of the target image data;

wherein the image coding unit is identical in structure to an image coding apparatus as defined in any of Claims 2, 8, 9, 14, 17, 18, and 33.

46. A facsimile comprising:

a scanner for converting a target image to be transmitted into electronic data, and outputting the target image data;

an image coding unit for coding the target image data to output image feature data indicating the feature of the target image as well as the coded data;

a transmitter-receiver for adding the image feature data relating to the coded data to the coded data, and transmitting and receiving composite data including the coded data and the image feature data through a communication line;

an image decoding unit for receiving the coded data and the image feature data included in the composite data received by the transmitter-receiver, and decoding the coded data on the basis of the image feature data to output target image data; and

an image output unit for displaying or printing out the

target image on the basis of the target image data;

wherein the image decoding unit is identical in structure to an image decoding apparatus as defined in any of Claims 5, 12, 16, and 20.

47. A filing apparatus comprising:

a scanner for converting a target image to be filed into electronic data, and outputting the target image data;

an image coding unit for coding the target image data, and outputting image feature data indicating the feature of the target image as well as the coded data of the target image;

an image storage means for storing the coded data in association with the corresponding image feature data;

a data reading means for reading coded data of a predetermined image and the corresponding image feature data from the image storage means, on the basis of a character code supplied from the outside as retrieval data;

an image decoding means for decoding the read coded data by using the image feature data to restore the image data of the predetermined image; and

an image output unit for displaying or printing out the predetermined image, on the basis of the image data;

wherein said image coding unit is identical in structure to an image coding apparatus as defined in any of Claims 2, 8, 9, 14, 17, 18, and 33.

48. A filing apparatus comprising:

a scanner for converting a target image to be filed into electronic data, and outputting the target image data;

an image coding unit for coding the target image data, and outputting image feature data indicating the feature of the target image as well as the coded data of the target image;

an image storage means for storing the coded data in association with the corresponding image feature data;

a data reading means for reading coded data of a predetermined image and the corresponding image feature data from the image storage means, on the basis of a character code supplied from the outside as retrieval data;

an image decoding means for decoding the read coded data by using the image feature data to restore the image data of the predetermined image; and

an image output unit for displaying or printing out the predetermined image, on the basis of the image data;

wherein said image decoding means is identical in structure to an image decoding apparatus as defined in any of Claims 5, 12, 16, and 20.

49. A filing apparatus comprising:

a scanner for converting a target image to be filed into electronic data, and outputting the target image data;

an image coding unit for coding the target image data, and outputting image feature data indicating the feature of the target image as well as the coded data of the target image;

a document image storage means for storing the coded data in association with the corresponding image feature data;

a data reading means for reading coded data of a predetermined image and the corresponding image feature data from the image storage means, on the basis of a character code supplied from the outside as retrieval data;

an image decoding means for decoding the read coded data by using the image feature data to restore the image data of the predetermined image; and

an image output unit for displaying or printing out the predetermined image, on the basis of the image data;

wherein said data reading means includes a character collation apparatus as defined in any of Claims 36 to 43.